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Foreword

The third European Software Engineering Conference follows ESEC '87 and ESEC '89 which were held in Strasbourg and Warwick, respectively. This series of conferences was set up by the European computer societies with the aim of providing an international forum for researchers, developers and users of software engineering technology. The need for a meeting point to discuss new results and useful experiences was felt quite naturally in view of the large amount of high-quality software engineering research which originated in Europe and which was stimulated over the last years through major European research programmes.

ESEC '91 has been organized jointly with two other international events: the Sixth International Workshop on Software Specification and Design (IWSSD-6), and an industrially oriented symposium and fair on Software Quality (CQS '91). The synchronization of these three events aimed to offer a unique opportunity to combine advanced research, ongoing developments and current practice in the field.

It appeared from the beginning of ESEC that these conferences also attracted distinguished work from elsewhere in the world. Internationalization has become even more pronounced with ESEC '91 where 133 papers were submitted from 26 different countries spanning four continents. The papers in these proceedings reflect this expansion.

The 22 papers published here represent those judged best by the Program Committee. They cover a fairly broad range of themes such as formal methods and practical experiences with them, special techniques for real-time systems, software evolution and re-engineering, software engineering environments and software metrics. The reader will perhaps identify some trends that are emerging from these papers, such as the search for systematic approaches to handle real-time systems, the need to fill the gap between unusable but sound formal methods and used but unsound "arrows and boxes" techniques, the need for developing environments equipped with reasoning capabilities, or the wish to learn or to rebuild from existing products and processes.

Invited talks were organized to address important areas that were felt to be insufficiently covered by the regular papers. Perspectives on configuration management, software factories, user interface design, computer security, and technology transfer were discussed by well-known experts. A number of invited papers covering these themes have accordingly been added to the regular papers. A few position papers by panel participants have also been included to provide some flavour on these panels.

We would like to express our warmest thanks to all members of the Program Committee who have been working hard reviewing papers and making numerous suggestions regarding the organization of the conference. The final shape of the program owes much to their help and advice. We are also indebted to the other referees who provided additional assistance in the difficult process of selecting good papers.

The software crisis has been recognized for 25 years now. Some people are currently talking about a software engineering crisis, that might be measured in terms of the number of problems raised versus the number of problems really solved. We hope that the contents of these proceedings will make a modest contribution to decreasing this measure.

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Table of Contents

Invited Papers

Software Configuration Management: Past Uses and Future Challenges.....1
Stuart I. Feldman

Architectural Design for User Interfaces7
Joëlle Coutaz

The Eureka Software Factory: Concepts and Accomplishments..... 23
Christer Fernström

Formal Approaches

Integrating Structured and Formal Methods: A Visual Approach to VDM..... 37
J. Dick and J. Loubersac

Rational Design of Distributed Applications..... 60
T. Cartel

Experience With Formal Methods

Test Data Selection From Algebraic Specifications:
Application to an Automatic Subway Module..... 80
P. Dauchy and B. Marre

Specification in COLD-1 of a CAD-Package for Drawing Shadow Masks.....101
F. J. van der Linden

Real-Time Systems I

ASTRAL: An Assertion Language for Specifying Real-Time Systems.....122
C. Ghezzi and R. A. Kemmerer

Execution Environment for ELECTRE Applications.....147
*D. Creusot, P. Lemoine, O. Roux, Y. Trinquet, A. Kung, O. Marbach and
C. Serrano-Morales*

Real-Time Systems II

An Engineering Approach Towards Hard Real-Time System Design.....166
H. Kopetz, R. Zainlinger, G. Fohler, H. Kantz, P. Puschner and W. Schütz

An Application of Artificial Intelligence to Prototyping Process in Performance Design for Real-Time Systems	189
<i>S. Honiden, N. Uchihira and K. Itoh</i>	

Coping With Changes

Dynamically Replaceable Software: A Design Method.....	210
<i>J. Amador, B. de Vicente and A. Alonso</i>	
Software Merge: Models and Methods for Combining Changes to Programs	229
<i>V. Berzins</i>	

Software Re-Engineering

A Theory for Software Design Extraction	251
<i>B. A. Sijsma and J. W. Mager</i>	
SESADA: An Environment Supporting Software Specialization	266
<i>A. Coen-Porisini and F. De Paoli</i>	

Metrics

Metric-Driven Classification Analysis.....	290
<i>R. W. Selby and R. K. Madsen</i>	
A Dynamic Failure Model For Predicting the Impact that a Program Location Has on the Program	308
<i>J. Voas</i>	
Relation Between Source Code Metrics and Structure Analysis Metrics.....	332
<i>I. Rozman, J. Györkös and T. Dogsa</i>	

Formal Bases

Algebraic Validation of Software Metrics.....	343
<i>M. Shepperd and D. Ince</i>	
An Algebraic View of Inheritance and Subtyping in Object Oriented Programming.....	364
<i>F. Parisi Presicce and A. Pierantonio</i>	

Environments I

Scaling Up Rule-Based Software Development Environments	380
<i>N. S. Barghouti and G. E. Kaiser</i>	
Inference-Based Support for Programming in the Large	396
<i>G. Snelting, F. J. Grosch and U. Schroeder</i>	

Environments II

TICKLE: Object-Oriented Description and Composition Services
for Software Engineering Environments.....409

T. Collins, K. Ewert, C. Gerety, J. Gustafson and I. Thomas
Integrated Project Support Environments,
Text Generation and Technical Writing424
C. Tattersall

The Arcs Experience443
D. Schefström

Position Papers

Panel 1: Impact of Software Engineering Researches on Industrial Practice

Panel Presentation465
A. Fuggetta

The Production of Software in the FINSIEL Group468
V. Frasca

The Impact of Software Engineering Researches on Industrial Practice -
A Personal View.....472
C. Jackson

Impact of Methods on Productivity and Quality480
R. Troy

Panel 2: Requirements Engineering: The Neats Versus the Scruffies

Requirements Engineering: Getting Right from Wrong.....485
M.S.Feather

A (Neat) Alphabet of Requirements Engineering Issues.....489
A. Finkelstein

The Scruffy Side of Requirements Engineering492
Sol Greenspan

Expediency and Appropriate Technology:
An Agenda for Requirements Engineering Research in the 1990s.....495
C. Potts

Panel 3: CASE Support for the Software Process

CASE Support for the Software Process	497
<i>P. Hruschka</i>	
CASE Support for the Software Process: a Research Viewpoint.....	499
<i>J. Kramer</i>	
CASE Support for Large Systems.....	504
<i>D. Robinson</i>	
CASE Seen From Both Sides of the Fence.....	509
<i>W.E. Fischer</i>	
CASE Support for the Software Process: Advances and Problems	512
<i>B. Lang</i>	